

REMARKS

Claims 1-22 are pending in the application.

Claims 1-4, 10-16, 18, 19, 21 and 22 are rejected as unpatentable over TAGUSA et al. 5,946,065 in view of SEO et al. 6,445,435 and further in view of applicants' disclosed prior art. This rejection is respectfully traversed.

The conclusion set forth in the Official Action that it would be obvious to have a control electrode under a gap between adjacent pixel electrodes and directly overlying a gate line cannot be maintained, because the same is not taught by the proposed combination of references. In addition, the references teach disparate methods for controlling light leakage such that one of ordinary skill in the art would not be motivated to combine the references in the manner suggested.

As set forth on page 3 of the Official Action, TAGUSA et al. fail to disclose, "control electrodes each disposed in the gap between adjacent pixel electrodes". The Official Action asserts that SEO et al. teach a control electrode directly overlying a gate line. However, neither SEO et al. nor TAGUSA et al. teach or suggest a control electrode under a gap between adjacent pixel electrodes.

Figure 2B of SEO et al. shows a common electrode 109 and a data electrode 108 directly over a gate line 101. However, as seen in this figure the pixel region covers an entirety of the figure such that there is no gap between adjacent pixel

electrodes. Therefore, it would appear impossible to conclude that a control electrode is under a gap between adjacent pixel electrodes when no gap exists.

Moreover, Figure 3C of SEO et al. shows common electrode 119 aligned with data electrode 108, but not directly over gate electrode 101. Column 4, lines 63-67 of SEO et al. in describing Figure 3C disclose that the common electrode 119 and the data electrode 108 do not overlap any portion of the gate bus line 101. (Emphasis added).

SEO et al. only require at least two of: the common electrode 109,119; the data electrode 108 and the gate electrode 101 to be aligned in order to form a storage capacitor so that the LCD has a high aperture ratio. SEO et al. do not require an electrode over the gate line and, in fact, teach away from such structure in the embodiment of Figure 3C.

"A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associate, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)."

Based on the teachings of SEO et al., each of the embodiments of SEO et al. should work equally well to form a storage capacitor so that the resultant LCD has a high aperture ratio. The Examiner cannot use impermissible hindsight reasoning to choose one embodiment from a plurality of embodiments and then

conclude that the chosen embodiment would be obvious. Such picking and choosing does not rise to the level of obviousness required under §103.

Even if one of ordinary skill in the art were motivated to choose the embodiment of Figure 2B of SEO et al. over the other embodiments of SEO et al., there is no teaching or suggestion in the references to place a control electrode under a gap between adjacent pixel electrodes. Accordingly, it would not be obvious to have a control electrode under a gap between adjacent pixel electrodes and directly overlying a gate line as recited in independent claims 1 and 16.

In addition, column 16, lines 1-16 and column 28, lines 21-48 of TAGUSA et al. teach that the overlap of the pixel electrode with the data lines in conjunction with microscopic hollows blocks light leakage and improves the brightness and/or the aperture ratio and eliminates the necessity of forming a black mask on a counter substrate.

SEO et al. teach forming a black mask (black matrix 128) on the second substrate 111 to prevent light leakage and improve the aperture ratio. Since TAGUSA et al. teach away from using a black matrix to improve aperture ratio, one of ordinary skill in the art would not be motivated to combine TAGUSA et al. with the teachings of SEO et al. to improve the aperture ratio as suggested in the Official Action.

Claims 5-9, 17 and 20 are rejected as unpatentable over TAGUSA et al. in view of SEO et al. and applicants' disclosed prior art and further in view of YAO et al. 5,682,211. This rejection is respectfully traversed.

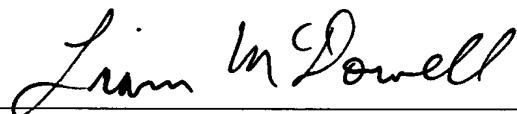
YAO et al. is only cited for the teaching of a control electrode having the same potential voltage as a source electrode. YAO et al. do not teach or suggest what is recited in claims 1 and 16. As set forth above, the combination of TAGUSA et al., SEO et al. and applicants' disclosed prior art does not teach or suggest what is recited in claims 1 and 16. Since claims 5-9, 17 and 20 depend from one of claims 1 and 16 and further define the invention, the proposed combination of references would not render obvious claims 5-9, 17 and 20.

In view of the foregoing remarks, it is believed that the present application is in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. §1.16 or under 37 C.F.R. §1.17.

Respectfully submitted,

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